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## Ocean<sup>i</sup>

Leah Gibbs<sup>ii</sup>

I look out to the long, flat line of the sea. A sheet of rippled blue stretches out to meet it. The swell pushes water into waves, wind chops the surface. Two gulls honk back and forth in quick succession. Their white bodies and black-tipped wings soar on thermal currents rising off the water's surface. I walk down the rocky beach, step carefully across rounded, slippery stones, and into the water. Feel the cold creep up my legs until the water is deep enough to dive in and swim out. Out past those rocks, the cold of the sea forcing blood through my body.

The ocean is in broad daylight. Plain to see. We might dip into it regularly, or gaze on it from time to time. Its image is strong in the mind's eye. A cultural referent: summer holiday fun; romantic sunset; diving adventure; approaching storm. We ascribe to it multiple meanings, and take from it innumerable resources.

We take fish; these days far too many. In rare places we drill and extract oil and gas. We blast the seabed to fix wind turbines, an alternative to the fossil-fuel energy that dominates our consumptive lives. And of course, we use it to freight goods around the world, via a complex network of carefully mapped pathways. We rely on the oceans' low surface resistance to trade wheat, coal, cars, phones and t-shirts to the extent we do.

We've made the ocean ours to explore, exchange, extract, imagine. Some of us dabble at the edges; few go far out. Freight workers, fishers, military personnel, minerals explorers, researchers, cruise passengers (perhaps more focused on the buffet than the briny), solo adventure-seekers. Despite distance, the deep oceans and high seas are coming more into view. Marine exploration and surveillance technologies, alongside beloved documentary productions, are unveiling the wonders of the blue planet.

We see the disastrous effects of overfishing. Attention is grabbed by dramatic events. A modern-day pirate chase across three oceans to end illegal hunting of Patagonian toothfish. Seventy million sharks per year pulled live from the water, fins sliced off, bodies dumped back overboard. These stories shock. But we take far more from the oceans through our legal, regulated fisheries. The United Nations estimates 80 million tonnes each year.<sup>1</sup> In the mid-1970s, ten percent of global marine fisheries were deemed 'overfished'; the result of harvesting fish faster than they can reproduce. Four short decades later, in 2015, the figure was one-third.<sup>2</sup>

More visible still is the horror of ocean plastics pollution. Expansive oceanic garbage patches and intimate individual suffering. A fur seal, slowly strangled by polyester fishing net; an albatross carcass, its plastics-heavy belly exposed by the elements or the pecking of

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<sup>1</sup> United Nations, *First Global Integrated Marine Assessment*.

<sup>2</sup> FAO, *State of World Fisheries and Aquaculture*.

predators. Such images were shared first by activists and now by supermarket chains, in an effort to shift our everyday practices. In the wealthiest parts of the world—those privileged with safe, potable drinking water on tap—the plastic water bottle is shunned, in favour of a handsome reusable one. Or one of a collection, gifted by event organisers and marketing firms to soothe our collective guilt.

And yet, the ocean remains in the shadows. Out of sight. Val Plumwood, in her essay *Shadow Places*, told how we humans draw on nature for many things. Some are in clear view; others are in the shadows. To take responsibility for our relationship with the Earth demands looking into the shadow places. Plumwood alerted us to the power of *dematerialisation*: “the process of becoming more and more out of touch with the *material conditions (including ecological conditions) that support or enable our lives*”. She urged, “Losing track of them means making more and more exhausting and unrealistic demands on them.”<sup>3</sup> We may see the fish in the supermarket freezer, the plastics on the beach. But the oceans’ core capacities are intangible on a human scale; at once too big and too small. The oceans regulate the temperature and carbon and oxygen balance of this planet.

The oceans are vast. They cover more than seventy percent of Earth’s surface, some 361,000,000 km<sup>2</sup>. The deepest trenches reach depths of almost 11km. They are constantly on the move. Oceanic currents, forced by Earth’s rotation, wind, salinity, density and temperature, connect the tropics to the poles in great circular flows—clockwise in the northern hemisphere, anti-clockwise in the south—and in a band through the Southern Ocean. Upwelling and deep ocean circulation bring continuous mixing of waters between warm surface and cold depths.

The physical-chemical processes are microscopic. The asymmetrical molecular structure of water, and its slight electrical charge, means it absorbs solar radiation much more effectively than most materials, and in turn retains that energy as heat. Carbon dioxide (CO<sub>2</sub>) is transferred between atmosphere and ocean through pressure differences; a process called diffusion. Much of the absorbed CO<sub>2</sub> interacts with water to form other chemical compounds, effectively making space for more CO<sub>2</sub>. And just like land plants, phytoplankton—microscopic marine algae—undergo photosynthesis, consuming CO<sub>2</sub> to build plant tissue. In this way the ocean produces half the planet’s oxygen. Phytoplankton in turn form the food stuff of zooplankton—microscopic marine animals—and the basis of all marine life.

Since the Industrial Revolution, and more dramatically since the post-World War II ‘Great Acceleration’, we humans have been producing carbon dioxide at ever-increasing rates, through burning fossil fuels, clearing land, and breeding animals to eat. Growing atmospheric CO<sub>2</sub> acts as insulation, creating an enhanced ‘greenhouse effect’ for the planet, and causing global temperature to rise. As it does, the oceans continue to absorb heat and CO<sub>2</sub>. Altered ocean temperature and chemistry are already damaging marine life, causing stronger storms and rising sea level, and seeing loss of livelihood, food and home for billions of people. Some scientists say the ocean is reaching or exceeding its capacity. The consequences are not fully known, but are emerging.

The ocean I step into today is changed from the one I played in as a child. In a matter of decades, we have altered its very composition, and in so doing, its nature. Without noticing. We’re partially conscious of our role in forcing this change. We have names for these phenomena. And yet, we continue to draw upon it, for resources and romance, materials and

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<sup>3</sup> Plumwood, “Shadow places,” 141–142

imaginaries. Our challenge now is to step into, gaze upon, dream of the ocean, with greater consciousness of the ways in which our lives are indelibly connected—through the seas—to all manner of human and non-human others and places. Through entities and processes at once too vast and too small to readily grasp, but that become visible to us, nonetheless.

## References

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<sup>i</sup> Gibbs, Leah. “Oceans.” *An A to Z of Shadow Places Concepts* (2020).

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